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ABSTRACT

The various criteria upon which interactive video courseware can be judged are outlined. The criteria relate to the critical areas of program usage, content, interactivity, production, presentation, design, and programming. The mnemonic HICUPPP is introduced to describe seven key areas that categorize criteria which can be used to evaluate interactive video programs: (1) How to use the program; (2) Information about the program; (3) Content of the program; (4) User involvement, control, and support; (5) Presentation; (6) Product design; and (7) Programming. Each of these criteria is examined in some detail and their relative importance is discussed. (GL)

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WHAT MAKES GOOD IV?

by Dr. Peter Copeland
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Presented to the Interactive '88 Conference, Brighton

When shopping for off-the-shelf and custom-made interactive video programmes, separating the good, the bad and the ugly is not easy without a detailed set of criteria upon which to base judgement.

The term 'interactive video' has been used to describe anything from a simple menu-based system allowing random access of linear sequences, to sophisticated, all-singing, all-dancing simulations of real processes on videodisc under user control.

Today I will outline the various criteria upon which I suggest interactive video courseware should be judged and note why some of these are so important. The criteria relate to the critical areas of programme usage, content, interactivity, production, presentation, design and programming.

Ultimately, of course, a judgement about the success and effectiveness of an IV programme will be based upon many factors. Pre-eminent amongst these are likely to be the amount of learning gain achieved, the post-programme attitudes adopted, the extent to which the trainees are motivated by the experience and the impact on the trainees' performance at work.

Establishing the degree to which a given IV programme achieves these things is not an easy task. It requires a formal approach to evaluation which identifies, controls and assesses the significance of the many variables which affect the learning process. Essentially, it requires a controlled experiment.

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Most such experiments employ a pre-test and post-test strategy whereby the trainee's knowledge or attitude on starting the programme is compared with that when he or she finishes it. The difference is referred to as the learning gain. This measure can be processed by various statistical procedures to establish its reliability and significance. Other factors such as retention, understanding and learning transfer to job tasks require complex evaluation subsequent to the trainee's encounter with the programme.

This paper concentrates on examining those criteria which contribute to the design and production of an IV programme. The effect of successfully fulfilling many of these criteria will of course influence the eventual performance of the IV programme in its training situation.

First then, the mnemonic HICUPPP will be introduced to describe seven key areas that categorise criteria that can be used to appraise IV programmes.

The seven points of the HICUPPP IV appraisal mnemonic are:

How to use the programme
Information about the programme
Content of the programme
User involvement, control and support
Presentation
Production and design, and
Programming.

Each of these areas can be further broken down into specific facets, but before this task is started, it is important to ascertain the value to be placed on each of the principal criteria. For example the relative importance of each could be placed in rank order: 'A' for absolutely essential and very important, 'B' for being of some importance, or 'C' for being of little importance.

When this exercise has been completed, programmes can be viewed and the HICUPPP criteria applied. With this assumption made, let us now look at each of these HICUPPP areas in more detail.

How to use the programme

Many programmes have to be used by people with no previous experience of interactive video. On the other hand, once someone starts using IV they quickly develop the skills needed to interface with the equipment. Programme design needs to cater for both of these levels of experience. Simple acts like starting the course, introducing the use of the input devices (keyboard, trackerball, etc), stoping (or exiting) the course or reviewing course segments should be as easy as possible and explained with a minimum of jargon. It should also be made immediately obvious and clear to the trainee how he or she can ask for help (in both using the equipment and for 'clues' to questions asked).

Information about the programme

Those who bear the responsibility of administrating the course and scheduling study sessions on the system should know with certainty the learning objectives which have been identified and are addressed by the courseware and associated manuals (if any are provided). A statement indicating for whom the course is intended is also crucial. If an off-the-shelf programme does not suit the intended audience, then very likely it will not succeed fully in achieving its training aims.

If a programme's aims and objectives are not stated, are fuzzy or unclear, then perhaps the programme producer has had difficulty identifying them. In which case the programme itself might well be poorly structured, inconsistent in its presentation and confusing in its choice of emphasis.

Content

The programme content is the realisation of the objectives into a structured presentation that is pedagogically sound. The level of teaching, the choice of images, the choice of words, the contribution made by drama, pictures and narrative will create an overall effect that must optimally enable the course

to achieve its objectives. The 'tone' must be appropriate to the intended audience if it is to be taken seriously and learned with a minimum of stress and hopefully some enjoyment. Of course it goes without saying that the information contained within the programme must be accurate, up-to-date and comprehensive.

User involvement, control and support

The learning process is most efficient and enjoyable when the trainee feels involved and can participate as much as possible. Various techniques can be used to achieve this participation. The 'interactive' in interactive video offers much opportunity here. For instance, a variety of questioning styles will help keep the attention of the trainee and the relevance of the questions to the subject.

In some instances the trainee benefits from being given the opportunity to control the learning process. Should the trainee choose to skip a segment of the course, in many cases it will not effect the immediate learning goal, provided the subject is presented in small, easily 'digested' segments and these segments can be accessed readily. Using the analogy of eating an orange, it is far easier and more fun to savour each segment in turn than to stuff the whole thing in one go! A certain caution is needed here, however, because there is research that indicates some people prefer to serially progress from start to finish (serialists) while others prefer to take an overall view of the course and piece it together themselves from their perspective (holists). The segmented orange could be made to look like a tree and then eaten!

Whichever mode of consumption is preferred, support is critical to the process, and learning is less stressful if the student can progress at times of difficulty without the equivalent of the classroom-style 'embarrassment' of raising a hand. A good interactive video programme will enable the trainee to ask for 'clues' to enable him to feel as though, in the end, he came up with the answer himself without being told.

Support can be offered in various forms, for instance, to provide a way to review the last segment a second time, perhaps with an alternative commentary, or to provide access to a 'help desk' information service, dictionary or calculator, etc. If a trainee gives a 'wrong' answer, further user support could also be provided by asking the question a second time but phrased differently to aid understanding of the question itself. It should also be easy for a trainee to return to the programme after some time to review a particular (and easily identifiable) segment.

Presentation

The presentation of an IV course involves images and sound. Together they provide the 'message systems' that communicate the content to the programme user.

Before interactive video was available, a programme whose presentation needed a complex mix of message systems employed a mixture of different media. Now the single medium of interactive video facilitates multiple message systems. These systems may comprise text, moving pictures, animation, still pictures, diagrams, narration, music, presenter, scientific notation and so on. Each of these needs presenting in a manner that suits the content within the message itself.

For example, it is obvious that it is easier to teach (and of course learn) mathematics using written numbers than purely by sound. Similarly it is easier to teach music with sound than purely by written notation.

Consider for instance, even a 'talking head' presenter. The face, voice and general demeanor must instil in the programme-user, confidence, trust and respect. Drama scenes must be credible, well acted and portray content with both subtlety and realism.

The creativity and professionalism seen on broadcast television generally has established a level of expectation that at best every IV programme should fulfil. But IV has its additional presentation requirements. For instance, the user needs to feel relaxed and confident about how to expect to input response. Text printed on-screen in a predictable layout, and/or questions appearing in a familiar manner each time can help achieve this.

On a more sensitive point, the user must not be made to feel uncomfortable for getting a question wrong, but made to feel quite natural, that perhaps others do not always get this point correct the first time, or that the concept is a difficult one to grasp, or that the answer is not so much wrong per se but that a better one could have been selected.

Production and design

Trust also extends to the technical accuracy of the audio and visual information. The still pictures must be rock steady on the screen; the image definition must be excellent to aid clarity.

The collection of audio visual information and the computer program driving the courseware should ideally provide a 'seamless' presentation and smooth progress through the course. For example, on a technical point, the sound level on both audio tracks must be matched and the colour signal must be consistent in visual presentations whether they are filmed sequences, still pictures or computer-generated artwork.

Programming

Lastly, the computer program that drives the hardware and courseware must be free of 'bugs,' and must be sufficiently flexible to discern a 'wrong' answer from a misspelling, for example.

The design of the computer program, its speed of execution and its ability to cope with a variety of unexpected student responses is of great importance in the programme's credibility. If the student feels he or she can 'fool' the computer, then what hope will he or she have in trusting it from then on?

Conclusion

Only after all these courseware appraisal criteria have been elaborated, ranked in order of importance to the user, then judged in quality and the rankings correlated, will a person be able to adequately appraise an interactive video programme.

It may not be a 'fool-proof' method, but it does go a long way in avoiding the mistakes that could lead to embarrassing hiccups when the company chairman asks what ill-advised individual purchased the most recent IV course.

Footnote:

Futuremedia Ltd, the specialist interactive video production company, has prepared a detailed checklist and guide to appraising the value of interactive video programmes. It identifies 101 key criteria on which a judgement can be based and provides an elaborated description of each one.

The checklist and guide is available from LaserMedia UK (Stand A13) or Futuremedia (Stand A15) at the Interactive '88 Exhibition or from LaserMedia UK Ltd. Contact Christine Hanson on 0243-821202.

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